# Explaining Differences in Education between Foster Children and Biological Children: a Sibling Rivalry Approach. Some Evidence from Indonesia

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January 21, 2009

**Abstract** This paper aims at explaining differences in education between foster-children and the biological children of their new household by differences in return to education as suggested by the human capital investment model. Defining this return by the amount of the old-age support the care-givers expect to receive, we assume that foster-children have a lower return to education than biological children, as the former might provide old-age support for both their host and biological parents while the latter to their biological parents only. Given this assumption and if the credit constraints are binding, the model suggests that foster-children will receive less human capital investment if there are in presence of host children than if they are not. In contrast, if parents have aversion against inequality, the prediction reverses: foster-children will receive more human capital investment if there are in presence of host children than if they are not. Using data from Indonesia, we provide some evidence in favor of the credit constraints hypothesis. This suggests that financial support to families who care for both biological and foster-children will enhance the latter education as it would reduce the credit constraints and thus, the induced sibling rivalry.

**Keywords:** Foster-Children, Sibling Rivalry, Asia, Indonesia

**JEL Classification Numbers:** I2, J1, O1, R2

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# 1 Introduction

Few papers have focused on discrimination in household resource allocations between siblings based on their biological link with their care-givers. Yet, such an analysis appears crucial given the rising number of recomposed families in developed countries and the expansion of children placement in developing ones.

Existing studies have mainly questioned differences in education or food consumption between children and their step-siblings. Using cross-sectional studies from developed countries, McLanahan and Dandefur (1994), Biblarz and Raftery (1999) and Case et al. (2000) find that step-children have educational outcomes worse than children who are raised by both of their biological parents. A similar result regarding food consumption is found by Case et al. (2000) using data from South Africa. The discrimination faced by the non-biological child appears all the more important as the mother is the absent parent (Case et al., 1999, 2000). However, these correlations are challenged for two reasons at least: cross-sectional studies fail to compare children's outcome with different biological status within the same household, and there do not deal with the endogeneity of the parental structure variable. When the latter is addressed, through fixed effect estimations, the correlation between the step status and the child's outcome remains significant in Case et al. (2001), Evenhouse and Reilly (2004) but not in Bjorklund and Sundstrom (2002) and in Gennetian (2004). Differences in outcome between adopted orphans and the biological child of their adoptive family have also been raised, in particular for developing countries. Orphans appear significantly disadvantaged relative to other children within the same household in terms of schooling in Case et al. (2004). Schooling and food expenditures are shown to be skewed toward biological children by Seck (2005) and Arndt et al. (2006) respectvely. However, again these results have to be taken with cautious due to the difficulty to control for children characteristics prior to the parental death (Beegle et al., 2006).

This literature has two shortcomings. First, it lacks of a theoretical framework to analyze the differences suggested between biological and non-biological children. For Ginter and

Pollak (2004), this is, with the endogeneity issue, the main reason for the absence of empirical consensus. Previous analyses refer mainly to arguments from evolutionary psychology and biology such as the Hamilton's rule which hypothesises that the level of altruism between two people should depend upon the coefficient of their genetic 'relatedness' (Hamilton, 1964). As exceptions, Case et al. (2001) note that the differences in education between biological and non-biological children could be due to differences in endowments in expected earnings, as suggested by the human capital investment model, without however explaining the origin of such differences. Seck (2005) argues that differences in education between biological and adopted orphans are due to differences in expected old-age support, parents believing that their biological children are more willing to care for them than adopted children due to the biological ties. Second, existing papers have mainly focused on step or adopted children well-being relative to the one of biological children. Foster-children welfare has not been specifically analyzed, while child fostering is widespread in developing countries and while numerous case studies from the anthropological literature suggest that their experience differ from the one of step or adopted children (Notermans, 2008). This paper aims at filling these two gaps.

Foster-children are children temporarily placed by their biological parents in another family who accept to provide the care - and in particular the education - the biological parents cannot afford (Akresh, 2004; Serra, 2008). Such a practice being well-used in developing countries, the presence of both biological and foster-children within the same sibship is highly probable and observable in these countries. How do they cohabit? While the anthropological literature describe rather well their experience, this paper is, to the best of our knowledge, the first attempt to analyze within an economic framework these children welfare specifically relative to the one of the biological children of their new sibship [1]. In particular, we are

[1]The existing economic literature dealing with foster-children in developing countries questions the benefit for a given child to be involved in a child-fostering experience relative to not. Akresh (2004) shows that all children involved in child-fostering (foster-children themselves, their biological siblings left behind and the biological children they have joined) benefit from the practice in terms of school enrollment relative to children not involved in. Although the foster-children education relative to the one of the biological children with whom they live is not directly analyzed, the following conclusion can be derived: biological children

interested in explaining their relative school enrollment[2].

To explain differences in school enrollment between biological and foster-children, we propose to derive predictions from the human capital investment model developed by Behrman, Pollak and Taubman (1982) and Becker (1991), well-used to understand differences in education between boys and girls, but not differences in education between biological and non-biological children[3]. Defining this return by the amount of the old-age support the care-givers expect to receive, we assume that foster-children have a lower return to education than biological children, as the former might provide old-age support for both their host and biological parents while the latter to their biological parents only. Given this assumption and if the credit constraints are binding, the model suggests that foster-children will receive less human capital investment if there are in presence of host children than if they are not. In contrast, if parents have aversion against inequality, with and without credit constraints, the prediction reverses: foster-children will receive more human capital investment if there are in presence of host children than if they are not.

We use data from the Indonesian Family Life Survey (1993) to test whether the school enrollment patterns observed between foster and biological children are consistent with the credit constraint hypothesis or with the aversion one. We estimate a school enrollment decision equation and show that foster-children are significantly less enrolled in school than their host siblings and than foster-children living with other foster-children only. This result, consistent with the credit constraint hypothesis, is robust to the introduction of several control variables. However, it is not true for foster-grand children: the latter neither suffer nor benefit from the presence of biological children in the host family (by definition, their aunts or uncles). This reveals the importance of taking the genealogical link of the foster-

have higher educational outcomes when they are in presence of foster-children relative to biological children who do not host any foster-child.

[2]To avoid any confusion, we propose the following definitions: foster-children are children who have been placed in a household and are not biologically linked neither to the household's head nor to his/her spouse. Host families are families receiving foster-children. If host parents have biological children, the latter are called host children relative to foster-children. Biological families refer to foster-children biological family.

[3]Although Becker himself in his *Treatise on the Family*(1991) incorporates biological considerations into household behavior (Cox, 2007)

child with his care-givers into account, at least in testing the sibling rivalry hypothesis. Besides, this result might be driven by a potential endogeneity bias: if children - other than grand-children - are not randomly fostered to households with and without potential rivals, and if the factors at stake are unobserved and correlated with the school enrollment decision, then our probit result is biased. To tackle the endogeneity issue, we estimate a bivariate probit model which enables to explain, besides the school enrollment decision, the decision of biological parents to foster a child within a family with or without potential rivals. Using the care-givers mean age as the identifying variable, we accept the hypothesis that the coefficient of correlation between both equations equals zero. In other words, probit estimations might not be biased.

According to these results, a competition exists between host and foster-children (other than grand-children) for limited parental resources. In this competition, foster-children systematically loose out due to their lower return to education. From a policy perspective, these results suggest that financial support should be provided to families who care for both biological and foster-children to enhance the latter education as it would relax the credit constraints and then reduce the siblings rivalry.

We present the theoretical framework in section 2. Section 3 presents the Indonesian context and introduces the IFLS data. Section 4 describes the estimation strategy and presents the probit estimates. Section 5 investigates the potential endogeneity bias through a bivariate probit model. Section 6 discusses results obtained and section 7 concludes.

# 2 The Theoretical Framework

## 2.1 The Sibling Rivalry Hypothesis Under Credit Constraints

Becker (1991) and Behrman, Pollak and Taubman (1982) develop models of human capital investment decision where parents are assumed to maximize the sum of their children income subject to the earning production function which depends on education. In this framework, the size and composition of the sibship affect a child's education under some specific assumptions, the most emphasized being the credit constraints (Butcher and Case, 1994; Bommier and Lambert, 2004). As long as parents do not face credit constraint, the size and composition of the sibship will not affect a child's education. Parents invest in their children education until their marginal value product equals the gross cost of borrowing. In such a circumstance, any differences observed in educational outcomes among children reflect solely differences in returns to schooling for these children relative to the cost of the funds. For instance, if women have on average lower earnings relative than men, then parents will invest more in their sons than in their daughters, without any further consideration for the sibship size[4]. This result is challenged when credit constraints are binding. If parents face credit constraints, they will not be able to invest in their children education until their returns to education equal the market interest rate. Therefore, children must compete for the resources currently available to the household. In this sibling rivalry, the child with lower returns to education loses out and in particular, receives less investment in the presence of his rival (with higher returns) than he would receive in his absence (Garg and Morduch, 1998). If boys have higher returns to education, this induces that not only boys will receive more education than girls but also that a girl with only sisters will receive more education than a girl with brothers [5].

We apply this model to the context of siblings with different biological links to their care-givers. The model suggests that if foster-children have lower return to education than biological children and if there are credit constraints, then foster-children living with host children should receive less education than their host rivals *and* than foster-children living with other foster-children only. However, this prediction to be true involves foster-children to

[4]According to Ota and Moffatt (2004), the lower return to education of girls relative to boys is determined by three factors at least: their earnings in the labor market, their level of support after marriage and the dowry price.

[5]This gender-based rivalry has been widely tested by empirical studies. Results are however conflicting, notably due to the difficulty to address, econometrically, the endogeneity of the sibling composition (Morduch, 2000). For developing countries, while a positive relationship is found by Parish and Willis (1994) for Taiwanese children, by Garg and Morduch (1998) for Ghanaian children and by Morduch (2000) for Tanzanian one, no significant effect is found by Morduch (2000) with South African data.

have lower return to education than biological children. If we define the return to education by the amount of old-age support the care-givers expect to receive from the children reared, and if foster-children have to support both their biological and host parents during their old-age, then for host parents who invest in these children education, foster children have lower return to education than their own biological children who have to care only for them. In other words, given this assumption and under credit constraints, foster-children will be systematically discriminated against the biological children when there are.

## 2.2 Alternative Theoretical Prediction

We should also observe sibling rivalry if parents have aversion to earnings inequality among their children whatever is the credit constraint situation (Butcher and Case, 1994). With such preferences, parents offset the higher marginal returns of some children by investing more heavily in children with lower returns to education. In other words, lower-returns children receive more education in the presence of rivals, who have higher returns, than they would have in their absence. Applied to gender issue, if boys have higher marginal returns to education, then girls will receive more education in the presence of brothers than a girl alone or with sisters. In our context, this suggests that foster-children who have lower returns to education will receive more education in the presence of host children, than they would receive in their absence[6].

[6]There is a last case in which sibling rivalry might emerge: if a sibling affects the returns to education of a given child through spillover effects for instance. In that case, parental investment decision in their children education are sub-optimal unless there are explicitly taken into account. Ono (2000) provides an empirical investigation of the question applied to gender discrimination.

# 3 Indonesian Context and Data

## 3.1 Child Fostering and Old-Age Support: the Indonesian Context

Our argument might well-apply in developing countries where credit markets are imperfect and formal old-age care does not exist or is insufficient making older parents dependent on their children. However, the moral obligation of foster-children to take care of both of their host and biological parents appears to differ from a developing country to another. According to the anthropological literature, Indonesia offers a rather valid context to test our hypothesis. Following Geertz (1961), there are two kinds of child placement in the country: child adoption and child 'borrowing'. While in the first case, children are explicitly asked to care for their adoptive-parents, in the second case, their obligation toward their host and biological parents are less clear. Unless formal arrangements are made between both types of parents, foster-children might have to care for both of them.

## 3.2 The Data

We use data from the Indonesia Family Life Survey conducted in 1993 (ILFS1) which contains a wealth of information collected at the individual, household and community levels on economic well-being, health and education. The sample is representative of about 83 percent of the Indonesian population and contains over 30,000 individuals living in 13 of the 27 provinces in the country (Frankenberg et al., 1995).

We focus on a sample of 530 children registered either as host (116) or as foster-children (414) and aged between 7-15 years old[7]. The educational outcome we consider in this paper is a dummy variable that equals one if the child is enrolled in school in 1993 according to the household roster and zero otherwise. Among the 414 foster-children, 246 are grand-children,

[7]According to the Indonesian schooling system, children start school at 7 years old and, if there is neither delay at entry, nor grade repetition, then children should complete their primary education at 12 years old and their junior high education at 15 years old (which is compulsory since 1994).

78 are nephews and nieces and 90 are other children (head's siblings, cousins, relatives, and non relatives)[8]. Our model suggests comparing the school enrollment of three groups of children: host children, foster-children living with host children and foster-children living with other foster-children only. According to our data, 82 foster-children among the 414 live in households with the 116 host children identified earlier and 166 lives in host households with other foster-children of 7-15 years old. 166 foster-children remain in our data who live in host households 'alone' that is to say, neither with host children, nor with foster-children of the same age-group. Say differently, they are the lonely children of their new family. As the model does not provide direct prediction concerning the amount of education received by this last group, the question to include them in our data is raised. We choose to take them into account as inference about their situation is easy. Relative to foster-children living with host siblings, foster-children living 'alone' might have higher school enrollment as they do not face any credit constraints relative to the former. The different sub-groups of children considered are summarized in table 1. We go further into details and identify how many children in each sub-group are involved in grand-children fostering and in nephews, nieces and other children fostering more particularly. For instance, 85 biological children of 7-15 host a nephew, or a niece or another child of the same age-group. 56 foster-nephews, nieces or other children of 7-15 live with a host child of 7-15. 72 live in their host household with other foster-nephews, nieces or others of the same age-group. 40 nephews, nieces or other children live 'alone'.

For each of these sub-groups of children, we are able to measure individual and household

[8]Identifying the children as host or foster ones is not direct in the IFLS dataset. We define therefore foster-children as children registered as living in the household for longer than six months, who are not biologically linked neither to the household's head nor to his/her spouse, and who are not adopted children. This last distinction is crucial as we suggested above that our model might not apply to the latter. Besides, foster-children are children whose both biological parents are alive *but* non co-residents of the household. Children who joined their host family with one or both of their biological parents are not considered as foster-children as their welfare might not depend directly on the household's head decision. Non-biological children whose one or both parents are deceased are also not included as the competition between host and biological parents for the old age support appears less clear. Host children are defined as children biologically linked to their care-givers and who host foster-children of their age-group that is to say between 7 and 15 years old.

Table 1: Number of Host and Foster-Children 7-15 in the Sample

| | **Host and Foster together** | | **Foster-Child with other Foster-Children** | **Foster-Child living Alone** |
|---|---|---|---|---|
| | Host Child | Foster Child | | |
| Sample of Children involved in all children fostering | 116 | 82 | 166 | 166 |
| Sub-sample involved in Grand-children fostering | 31 | 26 | 94 | 126 |
| Sub-sample involved in Nephews/Others fostering | 85 | 56 | 72 | 40 |

level characteristics such as the age, the sibship size, the parents' education and age, the household's level of consumption per capita and the location (urban, rural). For foster-children, as we do not have information on their biological parents (except whether they are alive or deceased), household level information are those of the host family. In table 2, descriptive statistics of the above-mentioned variables are provided for each sub-group of children involved in both kinds of child fostering highlighted: host children (column 2), foster-children living with host children (column 3), foster-children living in host families with other foster-children only (column 4), foster-children living 'alone' (column 5). We add a fifth column providing these statistics for children biologically linked to their care-givers who do not host any foster-child as a control (column 1). Table 3 repeats this exercise for each sub-group of children involved in nephews, nieces or other children fostering; table 4 for each sub-group of children involved in grand-children fostering.

These statistics reveal several interesting features. In table 2, foster-children living with host children (column 3) have on average a lower school enrollment rate than the host children (column 2) and than foster-children living with other foster-children only (column 4): while the former school enrollment rate equals 69.5 percent, host children are enrolled at 84.5 percent and foster-children living with other foster-children at 91.6 percent. These two patterns are consistent with the credit constraint hypothesis. They have also a lower school enrollment rate than foster-children living in their host family 'alone' as the latter school enrollment equals 86.1 percent (column 5).

Do we observe similar patterns when focusing on children involved in grand-children fostering only (table4) and those involved in nephews, nieces and other children fostering (table 3)? In the latter case, the average school enrollment pattern is still consistent with the credit constraint hypothesis. However it is not in the former case. Indeed, foster-grand children appear more enrolled in school than their host siblings: while the former are enrolled at 88.5 percent (column 2), host siblings are enrolled at 67.7 (column 3). But they are less enrolled in school than foster-grand children living with other foster-grand children whose school enrollment rate equals 94.7 percent (column 4). These two patterns are neither consistent with the credit constraint hypothesis nor with the aversion one. Although the first pattern might be explained by the fact that foster-grand children are younger than the host children (10,46 versus 12), the validity of our model in the case of foster-grand children is questioned. Does it make sense to assume that foster-grand children have a lower return to education than their aunts or uncles of the same age because they might provide care for both their parents and their grand-parents? As the answer is not as intuitive as for children of the same generation, we will systematically isolate the case of foster-grand children in our estimates.

The sub-samples of children differ from each other on characteristics other than the child's biological link with his care-givers and the presence or not of host children. In particular, the age might be an explaining factor of the observed patterns. Therefore the age heterogeneity has to be controlled for, as all other sources of heterogeneity, otherwise the estimated effect of the child's status within his household on his school enrollment will be biased.

# 4 Estimation Strategy and Probit Estimates

## 4.1 Estimation Strategy

We consider the following latent school enrollment model:

$$\begin{aligned} Enrolled{*}_{ifv} = \alpha + \vartheta_1 Host_{ifv} + \vartheta_2 FosterwithOtherFoster_{ifv} + \vartheta_3 FosterAlone_{ifv} + \\ \delta X_{ifv} + \gamma H_{fv} + \epsilon_{ifv} \end{aligned} \tag{1}$$

where $Enrolled{*}_{ifv}$ is the unobserved net benefit a child $i$ belonging to the household $f$ in the village $v$ receives from attending school. $X_{ifv}$ is a vector of observed exogenous child characteristics, except his status in the household; $H_{fv}$ is a vector of observed exogenous household and village level factors; $epsilon_{ifv}$ is a stochastic normally distributed error assumed to be i.i.d and uncorrelated with the explanatory variables. $Host_{ifv}$, $FosterwithOtherFoster_{ifv}$ and $FosterAlone_{ifv}$ are three dummy variables and characterize the status of the child $i$ in the household $f$ he lives: the first one equals one if the child $i$ is a host child, and zero otherwise; the second one equals one if the child $i$ is a foster-child and lives in his host family $f$ with other foster-children of his age-group only and zero otherwise; the third one equals one if the child $i$ is a foster-child and lives 'alone' in his host family and zero otherwise. By omitting foster-children living with host children, this specification assumes they are the reference group. A child will attend school if the expected net benefit is positive. $Enrolled{*}_{ifv}$ is related to the binary dependent variable $Enrolled_{ifv}$ by the following rule:

$$Enrolled_{ifv} = 1 \text{ if } Enrolled{*}_{ifv} \geq 0 \text{ and } 0 \text{ otherwise} \tag{2}$$

Given our model, under this specification, we expect $\vartheta_1$, $\vartheta_2$ to be positive under credit constraints, but negative if parents have aversion against inequality. $\vartheta_3$ should be positive.

As child level control variables, we introduce the child's gender and age. We expect in particular that the older is the child the less he is enrolled in school. If women face lower earnings than men, then we expect also a negative effect of being a girl relative to a boy on school enrollment. As household level control variables, we introduce the care givers's mean education and the consumption per capita of the household in log as proxies for wealth[9]. We expect that both of these variables have a positive effect on children school enrollment as there should increase the resources devoted to children education and decrease the opportunity cost of school attainment. We also include as a control the sibship size of the household. Defined as the number of children, biological and foster, aged between 7 and 15 years old reared by the parents, this variable aims at measuring the intensity of sibling rivalry within the household. To capture school and transport facilities which might enhance school enrollment in a given location, we introduce a dummy variable that equals one if the family lives in a rural location and zero otherwise. We expect that living in a rural location reduces children school enrollment relative to living in a urban one, unless the urban location captures the drawbacks of living in shanty towns[10].

We consider two other specifications to highlight the relative school enrollment of children involved in nephews, nieces and other children fostering and of children involved in grand-children fostering. For instance, for children involved in nephews, nieces and other children fostering, the school enrollment decision becomes:

$$\begin{aligned} Enrolled*_{ifv} = \alpha + \beta_1 HostWithNephew/Other_{ifv} + \beta_2 Nephew/OtherwithOtherFoster_{ifv} + \\ \beta_3 Nephew/OtherAlone_{ifv} + \sum \beta_j Alter.Status + \delta X_{ifv} + \gamma H_{fv} + \epsilon_{ifv} \end{aligned} \quad (3)$$

where *Alter.Status* refers to following four status: be a host child and live with a foster grand

9 Each parent's education is constructed as ten ordered categories from the combination of the highest level attained and graduated: no schooling (1), primary education attained (2), primary completed (3), junior high school attained (4) , junior high school completed (5), secondary education attained (6), secondary completed (7), undergraduate studies attained (8), undergraduate studies completed (9), graduate studies attained and more (10). Then the mean education is calculated as the average education of both parents when they are present and as the present parent education when one parent is absent.

10 The data does not enable to distinguish directly towns from shanty ones. However, we will use information on the house characteristics to capture such effects.

child, be a foster-grand child and live with host children, and be a foster-grand child and live with no rival and be a foster-grand child and live 'alone'. If we define foster-nephews, nieces and other children living with host children as the reference group, we expect $\beta_1$, $\beta_2$ to be positive under credit constraints and negative under aversion. $\beta_3$ should be positive[11].

## 4.2 Probit Estimation Results

### 4.2.1 Probit estimates

**All children sample** The two first columns of table 5 refer to the estimation of the equation (1). We present both the probit coefficients (Prob.) and the marginal effects (ME). Host children and foster-children living with other foster-children are significantly more enrolled in school than foster-children living with host children as $\vartheta_1$ and $\vartheta_2$ are positive and significant. The marginal benefit from moving from a situation where a child is fostered and lives with host children to a situation where he hosts a child increases his school enrollment of 6.6 percentage point (column 2, row (1)). The marginal benefit from moving from a situation where a child is fostered and lives with host children to a situation where he is fostered but lives with other foster-children only increases his school enrollment of 14.3 percentage point (column 2, row (2)). These patterns plead in favor of the existence of credit constraints raising a sibling rivalry detrimental for foster-children.

Foster-children living alone are also significantly more enrolled in school than foster-children living with host children as $\vartheta_3$ is positive and significant. The marginal benefit from moving from a situation where a child is fostered and lives with host children to a situation where he is fostered but lives alone increases his school enrollment of 11.8 percentage point (column 2, row (3) ). At the individual level, as expected the older are the children, the less they are enrolled in school. Gender does not affect significantly children school enrollment.

[11] This specification includes children involved in grand-children fostering. We could also exclude them. But besides, keeping the number of observations constant, the first strategy provides an additional information: it enables to compare the school enrollment of foster-grand children living with host siblings to the one of foster-nephews, nieces and other children in a similar situation (the reference group). The two strategies provide similar results.

At the household level, as expected, the care-giver's mean education as well as the household's consumption per capita promote significantly children school enrollment. Neither the sibship size, nor the rural location affect significantly the outcome. We go further by investigating whether these results vary when considering first, children involved in nephews, nieces and other children fostering, and second, children involved in grand-children fostering.

**Children involved in nephews, nieces and other children fostering** The third and fourth columns of table 5 refer to the estimation of equation (3). Both the probit coefficients and the marginal effects are computed. Host children are still significantly more enrolled in school than the foster-nephews, nieces and other children with whom they live as $\beta_1$ is positive and significant. More precisely, the marginal benefit from moving from a situation where a child is fostered and lives with host children as a nephew or niece or other child to a situation where he hosts a child (either a nephew, niece or other) increases his school enrollment of 11 percentage point (column 4, row (5)). Foster-nephews, nieces and other children living with other foster-children are also significantly more enrolled in school than the foster-nephews, nieces and other children living with host children ($\beta_2$ is positive and significant). More precisely, the marginal benefit from moving from a situation where a child is fostered and lives with host children as a nephew or niece or other child to a situation where he is fostered but lives with other foster-nephews, nieces or other children increases his school enrollment of 9.6 percentage point (column 4, row (6)). These patterns are consistent with the credit constraint hypothesis.

Foster-nephews, nieces and other children living alone are also more enrolled in school than those living with host children. Indeed $\beta_3$ is positive but significant only in marginal effect. The marginal benefit from moving from a situation where a child is fostered and lives with host children as a nephew, or a niece or other child to a situation where he is fostered but lives alone increases his school enrollment of 7.1 percentage point (column 4, row (7)). This specification enables also to drive some conclusion about the welfare of foster-grand children relative to foster-nephews, nieces and other children. In particular, foster-grand children living with host children appear significantly more enrolled in school than foster-nephews, nieces and other children in a similar situation (row (12)). The control variables have effects similar than in the first specification.

**Children involved in grand-children fostering** The fifth and sixth specifications in table 5 highlight the relative school enrollment of children involved in grand children fostering. Both probit coefficients and marginal effects are presented. Host children appear less enrolled in school than the foster-grand children with whom they live. The effect is however non significant (row (9)). Foster-grand children living with other foster-grand children appear also more enrolled in school than those living with host children. This effect is significant in marginal effects only. The marginal benefit from moving from a situation where a child is fostered and lives with host children as a grand-child to a situation where he is fostered but lives with other foster-grand-children increases his school enrollment of 8.3 percentage point (column 6, row (10)). These two patterns are neither consistent with the credit constraint hypothesis, not with the aversion one. Besides, foster-grand children living alone are not significantly more enrolled in school than foster-grand children living with host children (row (11)). The observations concerning the control variables are similar than in the first specification.

These probit estimations lead to the two following results: first, foster-nephews, nieces and other children appear to be in competition with their host siblings for limited parental resources. And in this competition, the former are significantly discriminated against the latter due to their lower return to education (defined here by the amount of old-age support these children are expected to provide to their care-givers). Second, concerning foster-grand children, the presence of host siblings does not appear as an important determinant of the amount of education received.

#### 4.2.2 Robustness Checks

We propose to check the robustness of the first result. The question is the extent to which the estimations of $\beta_1$, $\beta_2$ and $\beta_3$ vary with adding further control variables. The descriptive statistics of these variables are provided for the sub-sample of children involved in nephews, nieces and other children fostering in table6. The new estimations of $\beta_1$, $\beta_2$ and $\beta_3$, both in coefficients and in marginal effects, are resumed in table 7[12].

The first additional control we consider is the child's squared age. Although the probability of being enrolled in school decreases with the age (in particular after 12 years old when the primary education ends), the possibility of delays at entry might induce a positive relationship between school enrollment and age, at least between 7 and 9[13]. We expect therefore a positive effect of the age variable and a negative one of the squared age on children school enrollment. According to our estimates, as expected, the school enrollment increases with the child's age and decreases with his squared age. Both effects are significant. As observed in table 7, taking the child's squared age into account does not affect the estimated benefit from being a host child, or a foster-nephew, niece or other child living with other foster-children, relative to being a foster-nephew, niece or other child and live with host children. The related marginal effects are similar than in the initial specification. However, introducing this variable reduces the significance of $\frac{\partial \Upsilon}{\partial \beta_3}$. Foster-nephews, nieces or other children living alone are no more significantly enrolled in school than those living with host children.

Secondly, we introduce two dummy variables to indicate whether both parents are present or not and whether the household is headed by a female. The first variable appears important to control for given the differences observed in the descriptive statistics between each subgroups of children (table 3). We expect that having two parents relative to one parent increases the child's school enrollment if the presence of both parents is associated with

[12]Effects of the additional variables considered are not presented here but can be provided upon request.

[13]According to the children roster of the IFLS dataset, around 15 percent of children enter school at 8-9 years old, while the official age is 7.

higher resources devoted to children (in particular, if the man works, the mother might invest more time to care for her children). The second variable refers to the distribution of power between the father and the mother within the household. According to the literature dealing with the intra-household resource allocation, the more power has the mother, the more resource are allocated to children. We therefore expect a positive effect of having a female as the head of the household. According to our estimates, these variables have a positive but non significant effect on children school enrollment. As observed in table 7, taking them into account does not affect the estimation of the three coefficients of interest, neither in probit, nor in marginal effect.

We further include a dummy to identify the presence of biological children aged between 0-6 years old in the household[14]. If a child, in school age, has younger siblings and has to take care for them, we might observe a negative effect of their presence on the child's school enrollment. According to our estimates, the presence of younger biological siblings has not a significant effect on the child's school enrollment. Taking this dummy into account decreases $\frac{\partial \Upsilon}{\partial \beta_2}$ from 9.6 to 9.1, as well as $\frac{\partial \Upsilon}{\partial \beta_3}$ from 7.1 to 6.3. The latter looses besides its significance. We propose also in a second specification to interact the presence of younger biological children with $\beta_2$ and $\beta_3$ to see whether their presence decreases the benefit for foster-nephews, nieces and other children from not having biological children of 7-15 years old. Say differently, we ask whether young biological children are also rivals for foster-nephews, nieces and other children [15]. Including the interaction terms, we observe the

[14]We assume that this dummy is exogenous, although it might not be the case.

[15]Till now, we have assumed that only biological children aged between 7-15 years old are potential rivals for foster-children of this age-group as they clearly compete for the same educational resources if the latter are limited. Do *young* biological children and foster-children of 7-15 years old compete for similar resources? The answer is not clearcut: if parents have to care for both young biological children and foster-children of 7-15 years old, they have to decide to invest their limited resources either in children with certain lower return to education (foster-children today) or in children with uncertain higher return to education (biological children tomorrow). For instance, if the child mortality is high and if the care-givers are risk-adverse, then they might prefer investing their resource today in the education of foster-children to benefit from a certain amount of future old-age care, instead of investing their resource in the health care of young children whose probability to attain the schooling age is low. In contrast, parents might prefer to invest their limited resources in their young biological children health today due to their higher return to education tomorrow and make foster-children work today.

following patterns: foster-nephews, nieces and other children living with other foster-children *and not with* younger biological children are significantly more enrolled in school than foster-nephews, nieces and other children living with biological children of 7-15 ($\beta_2$ is positive and significant). Foster-nephews, nieces and other children living with other foster-children *and with* younger biological children are non significantly less enrolled in school than foster-nephews, nieces and other children living with biological children of 7-15. Foster-nephews, nieces and other children being the lonely children of 7-15 of their new family *and living without* younger biological children are non significantly more enrolled in school than foster-nephews, nieces and other children living with biological children of 7-15 ($\beta_3$ is positive but non significant). Foster-nephews, nieces and other children being the lonely children of 7-15 of their new family *but living with* younger biological children are non significantly less enrolled in school than foster-nephews, nieces and other children living with biological children of 7-15. Therefore, we should not consider young biological children as rivals for foster-nephews, nieces and other children.

We further consider a measure for the transfers received. The rationale for introducing such a variable is that host families might received transfers from the biological families as a participation to the cost of raising foster-children. These transfers, if there exist, might enhance the foster-children education. As we do not have information on the amount of transfers received by the biological parents of the foster-nephews, nieces and other children, we use as a proxy whether the care-givers receive transfers from non-coresident siblings and other members different than children and parents[16]. Given the number of missing values, in particular in the sub-group of foster-nephews, nieces and other children living alone, we consider a second specification introducing also a dummy for the missing values. In both

[16] According to table 6, foster-nephews, nieces and other children living without biological children of 7-15 (columns 4 and 5) receive on average more transfers than foster-nephews, nieces and other children living with host siblings (column 3). More precisely, foster-nephews, nieces and other children living with other foster-children of 7-15 (columns 4) have the highest rate of transfers received. This suggests that households raising foster-children only receive on average more compensation than households who have also biological children of the same age-group, as if raising foster-children only has a higher cost than raising them with biological children.

specifications, the transfers dummy has a positive but not significant effect on children school enrollment. The missing values dummy has a negative impact but again non significant. Omitting the missing values reduces the sample of 47 observations and induces significant variations in the estimation of the three coefficients of interest (table 7, column 6). If the missing values are taken into account, the estimations remain quite similar than those in the initial specification suggesting an important bias due to the omission of the missing values (table 7, column 7).

To capture the child's living conditions and further wealth effects, we consider three additional variables to characterize whether the parents own the house they live, whether the child has access to electricity and whether the sanitary is inside the house with or without a flush. More precisely, a first dummy is created and equals one if the parents own the house and zero otherwise; a second dummy variable equals one if the household has access to electricity and zero otherwise; and a third one equals one if the toilet are inside the house and zero otherwise. We add also a fourth dummy to take the presence of a flush into account: it equals one if the toilets are inside the house with a flush and zero otherwise. We expect that these four variables have a positive effect on children school enrollment. According to our estimates, having access to electricity enhances significantly children school enrollment. The three other dummies have no significant effect on the outcome. According to table 7, taking these wealth dummies into account increases both $\frac{\partial \Upsilon}{\partial \beta_2}$ and decreases $\frac{\partial \Upsilon}{\partial \beta_1}$. Their significance are not affected. The effect of these dummies on $\beta_3$ or $\frac{\partial \Upsilon}{\partial \beta_3}$ is particularly interesting. $\beta_3$ measures the impact for a foster-nephew, niece or other child of living 'alone' relative to living with host siblings on his school enrollment. This impact is assumed to be positive due to the absence of credit constraints for the former. Therefore the better the credit constraints is measured (thanks to wealth dummies for instance), the less significant should be the estimated benefit. However, introducing wealth dummies increases $\beta_3$ and $\frac{\partial \Upsilon}{\partial \beta_3}$ both in magnitude and in significance. This suggests that something independent from the credit constraints affects the school enrollment of foster-nephews, nieces and other children who live alone relative to those who live with host children.

To capture transport and school facilities associated with living in a big city, we control for the effect of living in Jakarta and Bali in addition to controlling for living in a rural or urban location. We also include three dummies to characterize whether the child lives in Central Java (at the center of the Island), in the North Sumatera (the region located at the most west of the island covered by the IFLS), and in South Sulawesi and in West Nusa Tenggara (the two regions at the most east of the island covered by the IFLS). While living in Central Java significantly increases children school enrollment, living in Bali is significantly detrimental. The other dummies have no significant effect. According to table 7, accounting for these location dummies affects significantly our estimates: $\frac{\partial \Upsilon}{\partial \beta_1}$ and $\frac{\partial \Upsilon}{\partial \beta_2}$ decreases however their significance remain. $\frac{\partial \Upsilon}{\partial \beta_3}$ decreases even more and its significance disappears. However the latter decrease might be due to the fact that there is no foster-nephews, nieces or other children living 'alone' in Bali.

Since religious schools might have different performances than other religious schools or than laic ones, it might be useful to control for such an effect (Evans and Schwab, 1995). In that perspective, we introduce five dummy variables to characterize the religion of the household's head: Muslim (the omitted category), Christian, Protestant, Buddhist or Hinduist considering that the religion of the household might determine the kind of school the child might attend. According to our estimates, being Hinduist relative to Muslim decreases significantly children school enrollment while the other religion dummies have no significant impact. According to table 7, accounting for these dummies decreases $\frac{\partial \Upsilon}{\partial \beta_2}$ and $\frac{\partial \Upsilon}{\partial \beta_3}$ without however affecting their significance.

Finally, we test the effect of introducing all these controls within the same estimation on $\beta_1$, $\beta_2$ and $\beta_3$ and the related marginal effects. The age squared determines still negatively and significantly the children school enrollment. The significant negative effect of being Hinduist relative to Muslim disappears (in marginal effect) whereas being Catholic and Buddhist enhance significantly children school enrollment. Having access to electricity or living in Central Java or in Bali are no more significant on children school enrollment. Living in the North Sumatera affects now significantly and negatively children school enrollment. According to table 7, taking all these variables into account decreases the marginal benefits of all the three status of interest. However, the significance remains for both $\frac{\partial \Upsilon}{\partial \beta_1}$ and $\frac{\partial \Upsilon}{\partial \beta_2}$. The decrease of $\frac{\partial \Upsilon}{\partial \beta_3}$ might be again due to the fact that we account for Bali while there is no foster-nephews, nieces and other children living alone in this city in our data.

As a conclusion, the estimations of $\frac{\partial \Upsilon}{\partial \beta_1}$ and $\frac{\partial \Upsilon}{\partial \beta_2}$ are relatively robust to the introduction of control variables. There remain significant in all specifications although their magnitude decrease when controls for wealth and region are added. Concerning $\frac{\partial \Upsilon}{\partial \beta_3}$, the introduction of different control variables affects its significance and magnitude. In particular, while we would expect that the related benefit decreases with wealth controls (measuring to some extent credit constraints), the effect increases both in magnitude and in significance. These variations raise however the question of a potential endogeneity bias derived from unobserved heterogeneity which we analyze in the following section[17].

# 5 Unobserved Heterogeneity and Bivariate Probit Estimates

## 5.1 The Heterogeneity Bias

If nephews, nieces and other children are not randomly fostered to households with and without potential rival, and if the factors at stake are correlated with the school enrollment decision, then our estimation of $\beta_2$ and of $\beta_3$ might be biased. Several unobserved factors might be at stake. To see this latter issue formally, we define the latent school enrollment

[17] Note that the results obtained if we consider the reduced-sample of children only involved in nephews, nieces and other children fostering are similar than those described here.

model as follows:

$$Enrolled*_{ifv} = \alpha + \beta_1 HostwithNephew/Other_{ifv} + \beta_2 Nephew/OtherwithOtherFoster_{ifv} + \beta_3 Nephew/OtherAlone_{ifv} + \sum \beta_j Alter.Status + \delta X_{ifv} + \gamma H_{fv} + \rho_{ifv} + \epsilon_{ifv} \quad (4)$$

where $\rho_{fv}$ captures unobserved household and community factors, $\nu_i$ unobserved child characteristics and $\epsilon_{ifv}$ child-specific error term. All other variables have the same definitions as above. The main difference between $\epsilon_{ifv}$ and the two other unobserved components is that, while the former is not correlated with the explanatory variables, $\rho_{fv}$ could influence both the status of the foster-child within his family (with biological children or not) and investments in human capital formation raising an endogeneity bias.

At the household level, $\rho_{fv}$ may, for example, include fertility troubles. Following the anthropological literature, a married woman who is not able to have children might ask her sister or brother who has several ones to give her one of them (Geertz, 1961). If women facing fertility troubles and receiving children have a higher preference for children quality, either because they were highly desired or, following the children quantity-quality trade-off because they could not invest in children quantity, then $\beta_2$ and $\beta_3$ are over-estimated. At the individual level, $\rho_{fv}$ may include the child's ability to live with others. If a child has some difficulties to live with other children, then his parents might prefer to send him in a household without any biological child (but also without any other foster-child). If this characteristic reduces the child's performance at school, then the correlation between $\rho_{fv}$ and the foster-child status within the host family under-estimates $\beta_3$.

We tackle the endogeneity issue by estimating a bivariate probit model which enables to model both the school enrollment decision and the decision of parents to foster their child either in a household with or without potential rivals. It provides also an estimation of the coefficient of correlation between both decisions useful to assess the extent to which the endogeneity suspected is an issue.

## 5.2 The Bivariate Probit Estimates

The children school enrollment decision and the decision to foster a child within a family with or without potential rivals are described by the following latent variable models:

$$Enrolled*_{ifv} = \alpha + \beta_1 HostwithNephew/Other_{ifv} + \beta_2 Nephew/OtherwithOtherFoster_{ifv} + \beta_2 Nephew/OtherAlone_{ifv} + \sum \beta_j Alter.Status + \delta R_{ifv} + \epsilon_{ifv} \quad (5)$$

$$Nephew/OtherwithnoRival*_{ifv} = \lambda + \mu Q_{ifv} + \upsilon_{ifv} \quad (6)$$

where $Nephew/OtherwithNoRival*_{ifv}$ is the unobserved expected net benefit for a foster-nephew, niece or other child $i$ from living without any rival relative to living with rivals in the household $f$ of the village $v$. $R_{ifv}$ and $Q_{ifv}$ measure observed and exogenous characteristics at the child, household, and community levels determining children school enrollment and the decision to foster a child in a household without any biological offspring respectively. A child will be enrolled in school and will be fostered in a household without any potential rival if the expected net benefits are positive. $Enrolled*_{ifv}$ and $Nephew/OtherwithNoRival*_{ifv}$ are related to the binary dependent variables $Enrolled_{ifv}$ and $Nephew/OtherwithNoRival_{ifv}$ by the following rule:

$$Enrolled_{ifv} = 1 \text{ if } Enrolled*_{ifv} \geq 0 \text{ and } 0 \text{ otherwise} \quad (7)$$

$$Nephew/OtherwithnoRival_{ifv} = 1 \text{ if } Nephew/OtherwithNoRival*_{ifv} \geq 0 \text{ and } 0 \text{ otherwise} \quad (8)$$

The endogeneity of the fostering decision within a household without any biological child induces $\epsilon_{ifv}$ to be correlated with $\upsilon_{ifv}$. To allow for it, we assume that $\upsilon_{ifv}$ and $\epsilon_{ifv}$ are distributed bivariate normal, with E[$\upsilon_{ifv}$]=E[$\epsilon_{ifv}$]=0, Var[$\upsilon_{ifv}$]=Var[$\epsilon_{ifv}$]=1 and cov($\upsilon_{ifv}$,$\epsilon_{ifv}$)=$\rho$. Because both decisions we model are dichotomous, there are four possible states of the world (Enrolled=1 or 0, Being a foster-child and living alone=1 or 0). The likelihood function corresponding to this set of events is therefore a bivariate probit. Our bivariate probit model is properly identified if corr($\upsilon_{ifv}$,$\epsilon_{ifv}$)=0. This implies to find at least one variable Z, the instrument, that is included in $Q_{ifv}$ but not in $R_{ifv}$.

Z should, first of all, explain the decision to foster a child within a family with and without potential rivals who are biological children aged between 7-15 years old (as we show that younger children are not rivals). To explain the decision of biological parents to foster a child within a family with or without biological children of 7-15 years old, we would need information on them. However, we do not have such information. Therefore, we explain instead the probability for a foster-nephew, niece or other child of escaping from the rivalry of host siblings by using information on the host family. The care-givers' mean age is an explaining factor and as it is not correlated, at least empirically, to the children school enrollment decision, we use it as our identifying variable. Indeed, the younger are the care-givers and in particular the female one, the younger might be their biological children. Therefore, with the care-givers mean age, the probability for a foster-child to live without biological children of 7-15 increases. To be a good instrument, the care givers' mean age should not be correlated with the children school enrollment. We investigate whether such a correlation exists empirically by reestimating equation (3) and adding the care-givers' mean age as an additional control. Results are shown in table 8: the care-givers's mean age does not affect significantly the children school enrollment[18]. Since the variable does not enter significantly in the education equation, the identification of the bivariate probit model is ensured.

Table 9 presents the bivariate probit estimates of the equations (5) and (6). The first box presents the probit estimates of the equation (6): the care-givers' mean age determines negatively and significantly the probability of being a foster-nephew, niece or other child and living without biological children of 7-15 (relative to all other status). Besides, the older is

[18]Introducing this variable increases $\beta_2$ slightly. Its marginal effect equals 0.105 while its initial value was 0.096.

the child and the more educated are the care-givers, the higher is the probability for a child of being fostered as a nephew, niece or other child in a household without rival. Gender, consumption per capital in log and rural location have no effect on this probability. The second box presents the probit estimates of the school enrollment decision model (equation (5)). While $\beta_1$ is still positive and significant, $\beta_2$ and $\beta_3$ decrease sensibly ($\beta_3$ becomes negative) and lose their significance. The effect of all other variables are similar than in probit estimation (the positive effect of the care givers education increases in the bivariate probit estimation). To what extend this challenges our results from the probit estimation? We accept the hypothesis that the coefficient of correlation between both decisions equals zero. That is to say, estimating the model within the bivariate probit framework is not justified and the probit model is preferred.

# 6 Discussion

Results from the probit estimation suggest that foster-nephews, nieces and other children are in competition with their host siblings for limited parental resources; and in this competition, foster-nephews, nieces and other children are significantly discriminated against due to their lower return to education. We have argued in this paper that this lower return to education is driven by a lower amount of old-age support they are expected to provide to their care-givers. However this last assumption is not tested.

Actually, other factors might induce foster-children to have a lower return to education relative to biological children and these factors would be consistent with our results. For instance, foster-children might have lower return to education due to lower school performance because they live far away from their biological parents and suffer from it. In this first case, their lower performance at school follows their fostering. We might also think that foster-children had lower school performance before their fostering - due to bad health for instance - and this is the reason why they were send to another family[19]. Besides, if

[19]There are some beliefs in Indonesia according to which health troubles faced by children are due to

foster-children joined their new household while they were already behind at school (because they entered school with delay or because they dropped from it temporarily ...), then they have lower return to education than a biological child of the same age who is not behind.

There are two ways to test whether the lower return to education of foster-children is driven by lower performances at school or by their obligation to share their futur earnings among their host and biological parents is to compare the school enrollment of adopted orphans with the one of the biological children of the adoptive parents. Orphans should not be discriminated against biological children if their return to education is determined by the amount of old age support the adoptive parents are expecting to receive. Indeed, as the biological parents of orphans are deceased, these children have a similar return to education than the biological children of the adoptive parents. However, given the small size of our orphan sample, we could not provide significant evidence of such a pattern[20].

A second test is to compare the school enrollment of unique biological children to the one of unique foster-nephews, nieces and other children. If host parents expect a lower amount of old-age support because foster-nephews, nieces and other children have to care also for their biological parents, then host parents who have foster-children only should over-invest in these children education to compensate their lower return to education and ensure that the old-age support they expect to receive will equal a minimum amount to survive. Say differently, foster-nephews, nieces and other children who are the lonely children of 7-15 years old of the host family should be more enrolled in school than biological children who are the

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some bad spirits. And the only way to recover health is to escape these spirits, that is to say to quit the biological household and join another one (Geertz, 1961).

[20]We count 52 adopted orphans aged between 7 and 15 years old in our data. This number includes 40 children registered as adopted in the roster - given some corrections due to misregistration according to the fertility survey - and 12 foster-children, except grand children, whose biological parents are registered as deceased. 13 of them live with 18 biological children of 7-15 years old, 6 of them live with other orphans of 7-15 only and 33 of them live alone. Descriptive statistics of these different sub-groups are provided in table10. As observed in the second column, orphans have a similar school enrollment rate than the biological children with whom they live (column 1). The former school enrollment rate equals 0.92 while the latter one equals 0.94. The gender and age patterns are also comparable between these two sub-groups. In contrast, they are sensibly more enrolled in school than orphans living with other orphans only whom school enrollment rate equals 66 percent (column 3). However, this might be explained by the fact that they are more girls in this last sub-group.

lonely children of their own family. If host parents do not expect old age support from their foster-children and if unique foster-nephews, nieces and other children appear less enrolled in school than unique biological children, then the lower return to education of foster-nephews, nieces and other children is driven by lower performances at school. This second test suggests to estimate a further school enrollment probit model where biological unique children are defined as the reference category (table 11). Relative to the latter, unique foster-nephews, nieces and others should be more enrolled in school if their lower return to education is driven by their obligation to care also for biological parents but should be less enrolled in school if their lower return to education is driven by lower performances at school. According to table 11, while unique foster-nephews or nieces are non significantly more enrolled in school than unique biological children (either of 7-15 or of 0-15 years old), unique foster-others are significantly less enrolled in school. These observations suggest that the lower return to education of foster-children other than grand children and than nephews or nieces is driven by lower performances at school. Conclusion regarding foster-nephews and nieces is not easy as the effect is not significant.

# 7 Conclusion

Based on the human capital investment model, we propose to explain differences in education between foster and biological children by differences in return to education. Defining this return by the old-age support these children are expected to provide, we argue that foster-children have lower return to education than biological children as the former might provide care for both their biological and host parents while the latter to their biological parents only. Under credit constraints, this suggests that foster-children should receive less education than their host siblings *and* than foster-children who live with other foster-children only. However, if parents are adverse to inequality in the earning profile of the children they rear, then foster-children should receive more education than their host siblings *and* than foster-children who live with other foster-children only. Using Indonesian data, in probit, we show that foster-children except foster-grand children are significantly less enrolled in school than their host siblings and than foster-children living with other foster-children only. In other words, foster-nephews, nieces and other children are in competition with their host siblings for limited parental resources and in this competition, they are significantly discriminated against due to their lower return to education. This result is rather robust to the introduction of several control variables in particular to the introduction of the transfers received by the extended family. This result appears also robust to the potential endogeneity of the decision to foster a child within a family with and without rivals as when estimating a bivariate probit model, we accept the hypothesis that the coefficient of correlation between both equations equals zero.

While we assumed in this paper that the lower return to education of foster-nephews, nieces and other children is driven by their obligation to care for both their host and biological parents, other factors might be at stake. Further research to answer this question is needed. This of primary concern, because if the lower return to education is driven by lower performances at school, then education bias against foster-children is justified from an efficiency view even if not desirable from an equity one. On the contrary, if the lower return is driven by a moral obligation to care for both biological and host parents, then education bias against foster-children is desirable neither for efficiency nor for equity. Therefore, financial support dedicated to households who care for both biological and foster-children would be essential to sustain the latter education by relaxing credit constraints and reducing sibling rivalry. Whatever drives the lower return to education of foster-nephews, nieces and other children, it has a further implications: the benefit from fostering, as shown in Akresh (2004), will be all the more important as parents could foster their children in households without potential rival for their children. The major limitation of this work appears to be the sample size and would therefore benefit from being applied to a larger sample of children.

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Table 2: Children Sample Summary Statistics (Standard Deviations are in Brackets)

| | Biological 7-15 living Alone | | Host and Foster 7-15 | | | | Foster-Child 7-15 with other Foster-Children | | Foster-Child 7-15 living Alone | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Host Child | | Foster Child | | | | | |
| | (1) | | (2) | | (3) | | (4) | | (5) | |
| **Variable** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** |
| Enrolled | 0.876 ( 0.329 ) | 6068 | 0.845 ( 0.364 ) | 116 | 0.695 ( 0.463 ) | 82 | 0.916 ( 0.279 ) | 166 | 0.861 ( 0.347 ) | 166 |
| Age | 10.996 ( 2.524) | 6070 | 11.397 ( 2.647 ) | 116 | 12.049 ( 2.464) | 82 | 11.735 ( 2.447 ) | 166 | 11.482 ( 2.456) | 166 |
| Gender (female) | 0.493 ( 0.5 ) | 6070 | 0.543 ( 0.5 ) | 116 | 0.512 ( 0.503) | 82 | 0.476 ( 0.501) | 166 | 0.566 ( 0.497 ) | 166 |
| Both Parents | 0.914 ( 0.281) | 6070 | 0.888 ( 0.317) | 116 | 0.89 ( 0.315) | 82 | 0.560 ( 0.498) | 166 | 0.554 ( 0.499 ) | 166 |
| Educ. Father | 2.469 ( 2.097) | 5624 | 2.906 ( 2.328) | 106 | 2.7073( 2.2) | 74 | 3.027 ( 2.193 ) | 111 | 2.196 ( 2.427 ) | 97 |
| Educ. Mother | 1.822 ( 1.803) | 5962 | 2.08 ( 1.96) | 113 | 1.914 ( 1.776) | 81 | 1.642 ( 2.137 ) | 162 | 1.207 ( 1.926 ) | 164 |
| Parents' age | 40.284 ( 7.591) | 6069 | 44.03 ( 8.348) | 116 | 44.207 ( 9.374) | 82 | 47.205 ( 19.465 ) | 166 | 56.609 ( 14.82 ) | 165 |
| N. Children 0-6 | 0.757 ( 0.892) | 6070 | 0.509 ( 0.692) | 116 | 0.561 ( 0.704) | 82 | 0.313 ( 0.591 ) | 166 | 0.271 ( 0.636 ) | 166 |
| Sibship size 7-15 | 0 ( 0.026) | 6070 | 3.06 ( 0.878) | 116 | 2.805 ( 0.823) | 82 | 2.542 ( 1.093) | 166 | 1 ( 0) | 166 |
| Cons pc (log) | 10.549 ( 0.793 ) | 6046 | 10.667 ( 0.830) | 114 | 10.663 ( 0.822) | 81 | 10.546 ( 0.805) | 166 | 10.497 ( 0.777 ) | 163 |
| Rural | 0.537 ( 0.499) | 6061 | 0.431 ( 0.497) | 116 | 0.427 ( 0.498) | 82 | 0.59 ( 0.493) | 166 | 0.560 ( 0.498) | 166 |

Table 3: Children Sample Summary Statistics: Foster-Children reduced to Nephews and Nieces and Other Children (Standard Deviations are in Brackets)

| | **Biological 7-15 living Alone** | | **Host and Nephews/Others 7-15** | | | | **Nephew/Other 7-15 with other Nephews/Others** | | **Nephew/Other 7-15 living Alone** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Host Child** | | **Nephew/Other** | | | | | |
| | (1) | | (2) | | (3) | | (4) | | (5) | |
| **Variable** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** |
| Nephews - Nieces | | | 0.682 ( 0.468) | 85 | 0.679 ( 0.471) | 56 | 0.292 ( 0.458) | 72 | 0.475 ( 0.506) | 40 |
| Other Children | | | 0.329 ( 0.473) | 85 | 0.321 ( 0.471) | 56 | 0.708 ( 0.458) | 72 | 0.525 ( 0.506 ) | 40 |
| Enrolled | 0.876 ( 0.329) | 6068 | 0.906 ( 0.294) | 85 | 0.607 ( 0.493) | 56 | 0.875 ( 0.333 | 72 | 0.8 ( 0.405 ) | 40 |
| Age | 10.996 ( 2.524) | 6070 | 11.165 ( 2.681) | 85 | 12.786 ( 2.197) | 56 | 12.431 ( 2.46) | 72 | 12.375 ( 1.996 ) | 40 |
| Gender (female) | 0.493 ( 0.5) | 6070 | 0.518 ( 0.503) | 85 | 0.5 ( 0.505 ) | 56 | 0.458 ( 0.502 ) | 72 | 0.625 ( 0.49 ) | 40 |
| Both Parents | 0.914 ( 0.281) | 6070 | 0.953 ( 0.213) | 85 | 0.946 ( 0.227) | 56 | 0.514 ( 0.503) | 72 | 0.6 ( 0.496 ) | 40 |
| Educ. Father | 2.469 ( 2.097) | 5624 | 3.481 ( 2.319) | 81 | 3.302 ( 2.258) | 53 | 4.211 ( 2.094) | 57 | 4.25 ( 2.287 ) | 28 |
| Educ. Mother | 1.822 ( 1.803) | 5962 | 2.376 ( 2.082 ) | 85 | 2.268 ( 1.949 ) | 56 | 2.943 ( 2.604) | 70 | 3 ( 2.513) | 39 |
| Parents' age | 40.284 ( 7.591) | 6069 | 41.082 ( 7.301) | 85 | 40.152 ( 7.631) | 56 | 29.049 ( 14.448) | 72 | 38.813 ( 17.25 ) | 40 |
| N. Children 0-6 | 0.757 ( 0.892) | 6070 | 0.529 ( 0.700 ) | 85 | 0.625 ( 0.728) | 56 | 0.444 ( 0.669 ) | 72 | 0.625 ( 0.925) | 40 |
| Sibship size 7-15 | 0 ( 0.026) | 6070 | 3.059 ( 0.85 ) | 85 | 2.786 ( 0.803) | 56 | 2.847 ( 1.489 ) | 72 | 1 ( 0 ) | 40 |
| Cons pc (log) | 10.549 ( 0.793) | 6046 | 10.844 ( 0.738) | 83 | 10.834 ( 0.779) | 55 | 10.631 ( 0.747) | 72 | 10.871 ( 0.793 ) | 40 |
| Rural | 0.537 ( 0.499) | 6061 | 0.341 ( 0.477 ) | 85 | 0.286 ( 0.456 ) | 56 | 0.514 ( 0.503 ) | 72 | 0.325 ( 0.474) | 40 |

Table 4: Children Sample Summary Statistics: Foster-Children reduced to Grand-Children (Standard Deviations are in Brackets)

| | **Biological 7-15 living Alone** | | **Host and Grand-Child 7-15** | | | | **Grand-child 7-15 with other grand-children** | | **Grand-child 7-15 living Alone** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Host Child** | | **Grand-Child** | | | | | |
| | (1) | | (2) | | (3) | | (4) | | (5) | |
| **Variable** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** |
| Enrolled | 0.876 ( 0.329) | 6068 | 0.677 ( 0.475) | 31 | 0.885 ( 0.326 ) | 26 | 0.947 ( 0.226 ) | 94 | 0.881 ( 0.325 ) | 126 |
| Age | 10.996 ( 2.524) | 6070 | 12.032 ( 2.483) | 31 | 10.462 ( 2.284) | 26 | 11.202 ( 2.312) | 94 | 11.198 ( 2.527) | 126 |
| Gender (female) | 0.493 ( 0.5) | 6070 | 0.613 ( 0.495) | 31 | 0.538 ( 0.508) | 26 | 0.489 ( 0.503 ) | 94 | 0.548 ( 0.5 ) | 126 |
| Both Parents | 0.914 ( 0.281) | 6070 | 0.71 ( 0.461) | 31 | 0.769 ( 0.43 ) | 26 | 0.596 ( 0.493) | 94 | 0.54 ( 0.5 ) | 126 |
| Educ. Father | 2.469 ( 2.097) | 5624 | 1.04 ( 1.02) | 25 | 1.19 ( 1.03) | 21 | 1.778 ( 1.501 ) | 54 | 1.362 ( 1.948 ) | 69 |
| Educ. Mother | 1.822 ( 1.803) | 5962 | 1.179 ( 1.156) | 28 | 1.12 ( 0.927) | 25 | 0.652 ( 0.804 ) | 92 | 0.648 ( 1.272 ) | 125 |
| Parents' age | 40.284 ( 7.591) | 6069 | 52.113 ( 5.072) | 31 | 52.942 ( 6.355) | 26 | 61.112 ( 7.886) | 94 | 62.304 ( 7.877 ) | 125 |
| N. Children 0-6 | 0.757 ( 0.892) | 6070 | 0.452 ( 0.675) | 31 | 0.423 ( 0.643) | 26 | 0.213 ( 0.505) | 94 | 0.159 ( 0.463 ) | 126 |
| Sibship size 7-15 | 0 ( 0.026) | 6070 | 3.065 ( 0.964) | 31 | 2.846 ( 0.881) | 26 | 2.309 ( 0.549) | 94 | 1 ( 0 ) | 126 |
| Cons pc (log) | 10.549 ( 0.793) | 6046 | 10.192 ( 0.887) | 31 | 10.301 ( 0.807) | 26 | 10.481 ( 0.845) | 94 | 10.375 ( 0.734) | 123 |
| Rural | 0.537 ( 0.499) | 6061 | 0.677 ( 0.475) | 31 | 0.731 ( 0.452 ) | 26 | 0.649 ( 0.48) | 94 | 0.635 ( 0.483 ) | 126 |

Table 5: Child Status and School Enrollment: Probit Estimates (Prob.) and Marginal Effects (ME) (Standard Errors are in Brackets)

| | **Variable** | **Prob.(1)** | **ME (2)** | **Prob.(3)** | **ME (4)** | **Prob.(5)** | **ME (6)** |
|---|---|---|---|---|---|---|---|
| (1) | Is a Host Child ($\vartheta_1$) | 0.382* | 0.066** | | | | |
| | | (0.22) | (0.03) | | | | |
| (2) | Is a Foster-Child living with Foster Children ($\vartheta_2$) | 0.872*** | 0.143*** | | | | |
| | | (0.22) | (0.03) | | | | |
| (3) | Is a Foster-Child living Alone ( $\vartheta_3$) | 0.698** | 0.118*** | | | | |
| | | (0.28) | (0.04) | | | | |
| (4) | Is a Foster-Child with Host Children | Omitted Cat. | Omitted Cat. | | | | |
| (5) | Is a Host Child with Foster-nephew/other ($\beta_1$) | | | 0.850*** | 0.110*** | -0.136 | -0.027 |
| | | | | (0.28) | (0.03) | (0.41) | (0.08) |
| (6) | Is a Foster-nephew/other living with foster nephews/others ($\beta_2$) | | | 0.721** | 0.096*** | -0.266 | -0.056 |
| | | | | (0.29) | (0.03) | (0.42) | (0.10) |
| (7) | Is a Foster-nephew/other living Alone ($\beta_3$) | | | 0.498 | 0.071* | -0.489 | -0.115 |
| | | | | (0.35) | (0.04) | (0.48) | (0.14) |
| (8) | Is a Foster-nephew/other with Host Children | | | Omitted Cat. | Omitted Cat. | -0.987** | -0.272* |
| | | | | | | (0.41) | (0.14) |
| (9) | Is a Host Child with Foster-grand child | | | 0.420 | 0.062* | -0.566 | -0.139 |
| | | | | (0.32) | (0.04) | (0.42) | (0.13) |
| (10) | Is a Foster-grand child living with other foster-grand children | | | 1.550*** | 0.162*** | 0.563 | 0.083* |
| | | | | (0.31) | (0.02) | (0.42) | (0.05) |
| (11) | Is a Foster-grand child living Alone | | | 1.268*** | 0.161*** | 0.282 | 0.048 |
| | | | | (0.32) | (0.03) | (0.43) | (0.07) |
| (12) | Is a Foster-grand child with Host Children | | | 0.987** | 0.103*** | Omitted Cat. | Omitted Cat. |
| | Gender | -0.049 | -0.010 | -0.053 | -0.010 | -0.053 | -0.010 |
| | | (0.15) | (0.03) | (0.15) | (0.03) | (0.15) | (0.03) |
| | Age | -0.179*** | -0.035*** | -0.158*** | -0.029*** | -0.158*** | -0.029*** |
| | | (0.03) | (0.01) | (0.03) | (0.01) | (0.03) | (0.01) |
| | Sibship Size 7-15 | 0.063 | 0.012 | 0.070 | 0.013 | 0.070 | 0.013 |
| | | (0.10) | (0.02) | (0.10) | (0.02) | (0.10) | (0.02) |
| | Care givers Education | 0.105** | 0.021** | 0.186*** | 0.035*** | 0.186*** | 0.035*** |
| | | (0.05) | (0.01) | (0.05) | (0.01) | (0.05) | (0.01) |
| | Consump. pc in log | 0.240** | 0.047** | 0.227** | 0.042** | 0.227** | 0.042** |
| | | (0.11) | (0.02) | (0.11) | (0.02) | (0.11) | (0.02) |
| | Rural | 0.170 | 0.034 | 0.112 | 0.021 | 0.112 | 0.021 |
| | | (0.17) | (0.03) | (0.17) | (0.03) | (0.17) | (0.03) |
| | Constant | -0.263 | | -0.825 | | 0.161 | |
| | | (1.19) | | (1.24) | | (1.24) | |
| | Pseudo R-squared | 0.142 | 0.142 | 0.183 | 0.183 | 0.183 | 0.183 |
| | LR | -190.4031 | -190.4031 | -181.3119 | -181.3119 | -181.3119 | -181.3119 |
| | N | 522 | 522 | 522 | 522 | 522 | 522 |

[a]* p<0.10, ** p<0.05, *** p<0.01

Table 6: Children Sample Summary Statistics: Foster-Children reduced to Nephews and Nieces and Other Children (Standard Deviations are in Brackets)

| | Biological 7-15 living Alone | | Host and Nephews/Others 7-15 Host Child | | Host and Nephews/Others 7-15 Nephew/Other | | Nephew/Other 7-15 with other Nephews/Others | | Nephew/Other 7-15 living Alone | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | | (4) | | (5) | |
| **Variable** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** |
| Muslim | 0.855 ( 0.352) | 6070 | 0.812 ( 0.393 ) | 85 | 0.821 ( 0.386) | 56 | 0.889 ( 0.316) | 72 | 0.75 ( 0.439) | 40 |
| Catholic | 0.063 ( 0.243) | 6070 | 0.094 (0.294 ) | 85 | 0.089 ( 0.288 ) | 56 | 0.056 ( 0.231) | 72 | 0.15 ( 0.362) | 40 |
| Protestant | 0.019 ( 0.138) | 6070 | 0.035 ( 0.186 ) | 85 | 0.036 ( 0.187 ) | 56 | 0.042 ( 0.201 ) | 72 | 0.025 ( 0.158 ) | 40 |
| Hinduist | 0.043 ( 0.204 ) | 6070 | 0.035 (0.186) | 85 | 0.018 ( 0.134 ) | 56 | 0 (0) | 72 | 0.025 ( 0.158 ) | 40 |
| Buddhist | 0.011 ( 0.104) | 6070 | 0.024 (0.152) | 85 | 0.018 ( 0.134) | 56 | 0 (0) | 72 | 0.05 ( 0.221 ) | 40 |
| Head=Female | 0.073 ( 0.26) | 6070 | 0.047 ( 0.213 ) | 85 | 0.054 ( 0.227) | 56 | 0.208 ( 0.409 ) | 72 | 0.3 (0.464 ) | 40 |
| Electricity | 0.677 ( 0.468) | 6057 | 0.882 ( 0.324 ) | 85 | 0.875 (0.334 ) | 56 | 0.833 ( 0.375) | 72 | 0.8 ( 0.405) | 40 |
| HH Status | 0.823 ( 0.382 ) | 6054 | 0.788 ( 0.411) | 85 | 0.679 ( 0.471) | 56 | 0.5 ( 0.504 ) | 72 | 0.525 ( 0.506 ) | 40 |
| Toilet inside | 0.492 ( 0.5) | 6056 | 0.706 ( 0.458 ) | 85 | 0.625 ( 0.489 ) | 56 | 0.472 ( 0.503 ) | 72 | 0.625 ( 0.49 ) | 40 |
| Toilet inside and flush and flush | 0.318 ( 0.466) | 6056 | 0.471 ( 0.502) | 85 | 0.429 ( 0.499 ) | 56 | 0.347 ( 0.479) | 72 | 0.475 ( 0.506) | 40 |
| Jakarta | 0.097 ( 0.296 ) | 6061 | 0.165 ( 0.373) | 85 | 0.196 ( 0.401) | 56 | 0.056 ( 0.231 ) | 72 | 0.175 ( 0.385) | 40 |
| Bali | 0.047 ( 0.211 ) | 6061 | 0.047 ( 0.213) | 85 | 0.054 ( 0.227 ) | 56 | 0 ( 0 ) | 72 | 0 ( 0 ) | 40 |
| Central Java | 0.12 ( 0.325 ) | 6061 | 0.141 ( 0.35) | 85 | 0.107 ( 0.312 ) | 56 | 0.028 ( 0.165) | 72 | 0.175 ( 0.385) | 40 |
| North Sumatera | 0.098 ( 0.297 ) | 6061 | 0.212 ( 0.411) | 85 | 0.179 ( 0.386 ) | 56 | 0.111 ( 0.316) | 72 | 0.125 ( 0.335) | 40 |
| South Sulawesi | 0.062 ( 0.241 ) | 6061 | 0 ( 0 ) | 85 | 0 ( 0 ) | 56 | 0.042 (0.201 ) | 72 | 0.125 ( 0.335) | 40 |
| West Nusa Tenggara | 0.067 ( 0.25 ) | 6061 | 0.071 ( 0.258 ) | 85 | 0.054 ( 0.227 ) | 56 | 0.056 ( 0.231) | 72 | 0.05 ( 0.221) | 40 |
| Transfers received by siblings and other | 0.416 ( 0.493) | 5892 | 0.288 ( 0.455 ) | 80 | 0.346 ( 0.48) | 52 | 0.557 ( 0.5 ) | 70 | 0.429 ( 0.502 ) | 35 |
| Transfers data miss | 0.029 ( 0.169 ) | 6070 | 0.059 ( 0.237 ) | 85 | 0.071 ( 0.26 ) | 56 | 0.028 ( 0.165) | 72 | 0.125 ( 0.335 ) | 40 |
| Transfers given missing data | 0.403 ( 0.491 ) | 6070 | 0.271 ( 0.447 ) | 85 | 0.321( 0.471) | 56 | 0.542 ( 0.502 ) | 72 | 0.375 ( 0.49 ) | 40 |

Table 7: Children Status and School Enrollment: Tests of Robustness (Standard Errors are in Brackets)

| | Initial Spec. | Age Squar. | Parental Struc. +Headship | Pres. 0-6 | Pres. 0-6 + Inter. | Transfers | Transfers +Miss | Wealth | Region | Religion | All |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $\beta_1$ | 0.850*** | 0.927*** | 0.850*** | 0.828*** | 0.851*** | 0.705** | 0.850*** | 0.820*** | 0.858*** | 0.920*** | 0.983*** |
| | (0.28) | (0.29) | (0.28) | (0.28) | (0.28) | (0.29) | (0.28) | (0.28) | (0.29) | (0.29) | (0.31) |
| $\beta_2$ | 0.721** | 0.793*** | 0.711** | 0.675** | 0.853** | 0.506* | 0.694** | 0.802*** | 0.597* | 0.707** | 0.790** |
| | (0.29) | (0.29) | (0.30) | (0.29) | (0.34) | (0.30) | (0.29) | (0.30) | (0.30) | (0.29) | (0.35) |
| Inter. | | | | | -0.347 | | | | | | |
| | | | | | (0.33) | | | | | | |
| $\beta_3$ | 0.498 | 0.396 | 0.475 | 0.432 | 0.618 | 0.203 | 0.505 | 0.629* | 0.249 | 0.482 | 0.301 |
| | (0.35) | (0.36) | (0.37) | (0.36) | (0.41) | (0.38) | (0.35) | (0.36) | (0.37) | (0.36) | (0.42) |
| Inter. | | | | | -0.294 | | | | | | |
| | | | | | (0.27) | | | | | | |
| $\frac{\partial \Upsilon}{\partial \beta_1}$ | 0.110*** | 0.107*** | 0.108*** | 0.107*** | 0.106*** | 0.095*** | 0.110*** | 0.105*** | 0.102*** | 0.110*** | 0.090*** |
| | (0.03) | (0.02) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.02) | (0.02) | (0.02) |
| $\frac{\partial \Upsilon}{\partial \beta_2}$ | 0.096*** | 0.091*** | 0.105*** | 0.090*** | 0.116*** | 0.073** | 0.094*** | 0.101*** | 0.078*** | 0.090*** | 0.077*** |
| | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.02) |
| Inter. | | | | | -0.063 | | | | | | |
| | | | | | (0.06) | | | | | | |
| $\frac{\partial \Upsilon}{\partial \beta_3}$ | 0.071* | 0.063 | 0.081** | 0.063 | 0.060 | 0.033 | 0.071* | 0.081** | 0.037 | 0.066* | 0.036 |
| | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.05) | (0.04) | (0.03) | (0.05) | (0.04) | (0.04) |
| Inter. | | | | | -0.054 | | | | | | |
| | | | | | (0.05) | | | | | | |
| | Foster-nephews, nieces and other children living with host children = Omitted Category | | | | | | | | | | |
| Ps.R | 0.183 | 0.218 | 0.189 | 0.186 | 0.190 | 0.171 | 0.184 | 0.197 | 0.231 | 0.207 | 0.308 |
| LR | -181.3119 | -173.4925 | -179.9807 | -180.6159 | -179.6712 | -163.1983 | -181.1267 | -178.0688 | -170.6233 | -176.0372 | -153.4629 |
| N | 522 | 522 | 522 | 522 | 522 | 475 | 522 | 522 | 522 | 522 | 522 |

[a] * p<0.10, ** p<0.05, *** p<0.01

Table 8: Children Status and School Enrollment: Care Givers' Mean Age Effect (SE in Brackets)

| | **Prob.** | **ME** |
|---|---|---|
| Host Child with Foster-nephew/other ($\beta_1$) | 0.837*** | 0.109*** |
| | (0.28) | (0.03) |
| Foster-nephew /other with other foster-nephew/other ($\beta_2$) | 0.825*** | 0.105*** |
| | (0.30) | (0.03) |
| Foster-nephew/other living Alone ($\beta_3$) | 0.520 | 0.072** |
| | (0.36) | (0.04) |
| Foster-nephew or other with Host Children | Omitted Category | |
| Host Child with Foster-grand child | 0.329 | 0.051 |
| | (0.33) | (0.04) |
| Foster-grand child with other foster grand children | 1.371*** | 0.151*** |
| | (0.34) | (0.02) |
| Foster-grand child living Alone | 1.098*** | 0.144*** |
| | (0.35) | (0.03) |
| Foster-grand child with Host Children | 0.888** | 0.098*** |
| | (0.41) | (0.02) |
| Gender | -0.055 | -0.010 |
| | (0.15) | (0.03) |
| Age | -0.163*** | -0.030*** |
| | (0.03) | (0.01) |
| Sibship Size 7-15 | 0.079 | 0.015 |
| | (0.10) | (0.02) |
| Care givers Education | 0.200*** | 0.037*** |
| | (0.05) | (0.01) |
| Consump. pc in log | 0.241** | 0.045** |
| | (0.11) | (0.02) |
| Rural | 0.110 | 0.021 |
| | (0.17) | (0.03) |
| **Care givers Mean Age** | 0.010 | 0.002 |
| | (0.01) | (0.00) |
| Constant | -1.385 | |
| | (1.31) | |
| Pseudo R-squared | 0.186 | 0.186 |
| LR | -180.3715 | -180.3715 |
| N | 521 | 521 |

[a]* p<0.10, ** p<0.05, *** p<0.01

Table 9: Effects of Child's Status on School Enrollment: Bivariate Probit Estimates (Standard Errors are in Brackets)

| Box 1 | Is a Foster-Nephew/Other living without any Rival of 7-15 | |
|---|---|---|
| Care-givers Mean Age | -0.046*** | (0.00) |
| Gender | .170 | (0.15) |
| Age | 0.076** | (0.03) |
| Care-givers Education | 0.187*** | (0.04) |
| Consump. pc in log | -0.177 | (0.11) |
| Rural | 0.057 | (0.16) |
| Constant | 1.592** | (1.23) |
| **Box 2** | **School Enrollment** | |
| Is a Host Child with foster-nephew/other ($\beta_1$) | 0.825*** | (0.27) |
| Is a Foster-nephew/other living with other foster nephew/other ($\beta_2$) | 0.232 | (0.48) |
| Is a Foster-nephew/other living Alone ($\beta_3$) | -0.065 | (0.56) |
| Is a Foster-nephew/other with Host Children | Omitted Cat. | |
| Is a Host Child with Foster-grand child | 0.375 | (0.32) |
| Is a Foster-grand child living with other foster-grand children | 1.486*** | (0.31) |
| Is a Foster-grand child living Alone | 1.227** | (0.40) |
| Is a Foster-grand child with Host Children | 0.934** | (0.40) |
| Gender | -0.037 | (0.15) |
| Age | -0.150 *** | (0.03) |
| Sibship Size 7-15 | 0.079 | (0.10) |
| Educ. Parents | 0.225 *** | (0.06) |
| Consump. pc in log | 0.207* | (0.11) |
| Rural | 0.118 | (0.17) |
| Constant | -0.684 | (1.23) |
| Athrho | 0.338 | |
| Rho | 0.326[2] | |
| LR | -357.38 | |
| N | 521 | |

[a]* $p<0.10$, ** $p<0.05$, *** $p<0.01$
[b]Prob > chi2 = 0.23

Table 10: Children Sample Summary Statistics: Biological and Orphan Children (Standard Deviations are in Brackets)

| | **Host and Orphan** | | | | **Orphan with** | | **Orphan** | |
|---|---|---|---|---|---|---|---|---|
| | **Host Child** | | **Orphan** | | **Other Orphans** | | **Alone** | |
| | (1) | | (2) | | (3) | | (4) | |
| **Variable** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** | **Mean (SE)** | **N** |
| Enrolled | 0.944 ( 0.236 ) | 18 | 0.923 ( 0.277 ) | 13 | 0.667 ( 0.516 ) | 6 | 0.758 ( 0.435) | 33 |
| Gender | 0.389 ( 0.502 ) | 18 | 0.385 (0.506 ) | 13 | 0.5 ( 0.548 ) | 6 | 0.667 ( 0.479) | 33 |
| Age | 11.833 ( 2.526 ) | 18 | 11.538 ( 2.504) | 13 | 11.167 ( 2.787) | 6 | 11.515 ( 2.279) | 33 |
| Pres. 0-6 | 0.556 (0.511) | 18 | 0.462 ( 0.519) | 13 | 1 ( 0 ) | 6 | 0.303 ( 0.467) | 33 |
| Both Parents | 0.944( 0.236 ) | 18 | 0.923( 0.277) | 13 | 1 ( 0 ) | 6 | 0.818 ( 0.392) | 33 |
| Educ. Father | 4.941 ( 2.41) | 17 | 4.833 ( 2.657 ) | 12 | 0.667 ( 0.516) | 6 | 2.185 ( 2.095) | 27 |
| Educ. Mother | 3.278 ( 2.492 ) | 18 | 3.308 ( 2.562) | 13 | 1.333 (0.516 ) | 6 | 1.273 ( 1.526 ) | 33 |
| Parents Mean age | 43.222 ( 5.529) | 18 | 43.846 ( 5.618) | 13 | 36.5 ( 11.018) | 6 | 45.712 ( 13.072 ) | 33 |
| Consump. pc (log) | 11.37 ( 0.865) | 18 | 11.49 ( 0.862) | 13 | 10.771( 0.497) | 6 | 10.738 ( 0.799) | 33 |
| Rural | 0.389( 0.502 ) | 18 | 0.308 ( 0.48) | 13 | 0.667 ( 0.516) | 6 | 0.636( 0.489 ) | 33 |

Table 11: School Enrollment of Unique Biological Children versus Unique (Alone) Foster-Children (SE in Brackets)

| | **Prob.** | **ME** | **Prob.** | **ME** |
|---|---|---|---|---|
| Foster-Nephew is the | 0.012 | 0.001 | 0.469 | 0.036 |
| Unique Child of 7-15 | (0.53) | (0.06) | (0.62) | (0.03) |
| Foster-Other is the | -1.058*** | -0.243** | -0.816** | -0.158* |
| Unique Child of 7-15 | (0.31) | (0.10) | (0.34) | (0.09) |
| Foster-Grand Child is | 0.352** | 0.032*** | 0.525*** | 0.043*** |
| the Unique Child of 7-15 | (0.17) | (0.01) | (0.19) | (0.01) |
| Unique Biological Child | Omitted | | | |
| of 7-15 | Category | | | |
| Unique Biological Child | | | Omitted | |
| of 0-15 | | | Category | |
| Gender | -0.127 | -0.015 | -0.028 | -0.003 |
| | (0.09) | (0.01) | (0.12) | (0.01) |
| Age | -0.198*** | -0.029*** | -0.268*** | -0.029*** |
| | (0.02) | (0.002) | (0.03) | (0.00) |
| Presence of 0-6 | -0.249** | -0.029** | -1.193*** | -0.277** |
| | (0.10) | (0.01) | (0.34) | (0.12) |
| Care givers Education | 0.251*** | 0.029*** | 0.291*** | 0.032*** |
| | (0.04) | (0.00) | (0.06) | (0.00) |
| Consump. pc in log | 0.322*** | 0.037*** | 0.321*** | 0.035*** |
| | (0.07) | (0.00) | (0.09) | (0.00) |
| Rural | -0.274** | -0.031** | -0.385*** | -0.042*** |
| | (0.10) | (0.01) | (0.14) | (0.01) |
| Both Parents | 0.250** | 0.033* | 0.331** | 0.043* |
| | (0.75) | (0.01) | (0.14) | (0.02) |
| Constant | -0.126 | | 0.680 | |
| | (0.75) | | (1.00) | |
| Pseudo R-squared | 0.221 | 0.221 | 0.275 | 0.275 |
| LR | -465.415 | -465.415 | -265.269 | -265.269 |
| N | 1649 | 1649 | 922 | 922 |

[a]* $p<0.10$, ** $p<0.05$, *** $p<0.01$